

## REMARKS

Claim 57 has been canceled.

Claim 40 has been amended so that SEQ ID NO's 30 & 33 no longer appear in the language of the claim. In addition, the function of eliciting an immune response now refers to proteins having specific SEQ ID NO's as opposed to referring to "naturally occurring canine or feline B7-2 proteins." Support for such a function can be found in the specification, for example, on page 10, lines 7-28, page 26, lines 14-23, and page 30, lines 3-20. With regard to T-cell proliferation, the language has been altered so that T-cell proliferation now occurs in the presence of an antigen that binds T-cell receptor. Applicants believe this language adds clarity to the claims. Support for such language can be found in the specification, for example, on page 1, lines 9-17.

Claim 41 has been amended to remove language referring to naturally occurring B7-2 proteins. In addition, the claim now specifies nucleic acid molecules 95% identical to SEQ ID NO:33, nucleic acid molecules encoding a protein 95% identical to SEQ ID NO:34 and nucleic acid molecules comprising the sequence of SEQ ID NO:30. The Claim also now specifies the function of eliciting an immune response or stimulating T-cell proliferation. With regard to T-cell proliferation, the language has been altered so that T-cell proliferation now occurs in the presence of an antigen that binds T-cell receptor. Applicants believe this language adds clarity to the claims.

Claim 42 has been amended so that SEQ ID NO's 30 & 33 no longer appear in the language of the claim.

Claim 43 has been amended so that SEQ ID NO's 6, 9, 16, 19, 25 and 28 no longer appear in the language of the claim.

Claim 44 has been amended to include nucleic acid molecules complimentary to those already described by the claim. In addition, the function of eliciting an immune response now refers to proteins having specific SEQ ID NO's as opposed to referring to "naturally occurring canine or feline B7-2 proteins." With regard to T-cell proliferation, the language has been altered so that T-cell proliferation now occurs in the presence of an antigen that binds T-cell receptor. Applicants believe this language adds clarity to the claims.

Claim 45 has been amended so that SEQ ID NO's 31 & 34 no longer appear in the language of the claim.

Claim 46 has been amended so that it no longer refers to allelic variants. The claim now specifies the nucleic acid molecules encode proteins having the specified amino acid sequences.

Claim 47 has been re-drafted to clarify the language of the claim. In addition, reference to SEQ ID NO's 30 & 33 has been removed from the claim. Finally, the claim now also refers to nucleic acid molecules complementary to the already specified SEQ ID NO's.

Claim 50 has been amended to read "as specified in any one of" when referring to Claims 40-49.

Claim 51 has been amended so that SEQ ID NO's 30 & 33 no longer appear in the language of the claim. In addition, reference to naturally occurring B7-2 proteins has been removed from the claim. Finally, functional language, identical to that listed for example in Claim 40, has been added to the claim.

Claim 52 has been amended so that SEQ ID NO's 31 & 34 no longer appear in the language of the claim.

Claim 53, has been amended so that SEQ ID NO's 30 & 33 no longer appear in the language of the claim.

Claim 54 has been amended so that SEQ ID NO's 31 & 34 no longer appear in the language of the claim.

Claim 55 has been amended to remove reference to allelic variant and naturally occurring B7-2 proteins. The claim now specifies a method to produce a protein using the nucleic acid molecule of Claim 41.

Claim 56 has been amended so that SEQ ID NO's 30 & 33 no longer appear in the language of the claim.

Claims 59-61 have been amended to correct improper multiple dependencies. Specifically, the Claims now refer to "any one of" Claims 40-49.

#### Claim Objections

With respect to the improper dependencies noted by the Examiner, Applicants note Claim 57 has been canceled. Additionally, Claims 46, 50, 55 and 59-61 have been amended to either remove or correct the multiple dependency language.

With respect to Claim 43, the wayward period has been dealt with and should no longer present a problem.

#### Rejections Under 35 U.S.C. §112, second paragraph

The Examiner has rejected Claim 43 for lack of antecedent basis for SEQ ID NO's encoding non-soluble B7-2 proteins, since Claim 41, from which Claim 43 depends, requires the nucleic acid molecules encode a soluble B7-2 protein. Applicants note Claim 41 has been amended to remove the requirement that the encoded proteins be soluble.

The Examiner has also rejected Claims 53, 54 and 55 for referring to the method of Claim 50, when in fact, Claim 50 is to composition. Applicants note the dependency in Claims 53-55 has been changed so these claims now depend from Claim 51 which specifies a method.

#### Rejections Under 35 U.S.C. §112 second paragraph

The Examiner has rejected Claims 40-46, 50-55 and 59-61 for lack of written description and lack of enablement. Specifically, the Examiner states some claims to nucleic acid molecules about 95% identical to reference molecules lack a functional description and therefore have not been adequately described or enabled. In addition, there is not adequate written description or enablement for allelic variants or "naturally occurring canine or feline B7-2 proteins."

Applicants note that functional language has been added to claims, in particular Claims 51-52, specifying nucleic acids about 95% identical to reference sequences. In addition, although Applicants believe the use of the term "allelic variant" is supported in the specification, all reference to allelic variants have been removed from the claim set. Likewise, although Applicants believe "naturally occurring canine and feline B7-2 proteins" are adequately described and enabled in the specification, in order to expedite prosecution, Applicants have replaced all such language in the claims with language that references a particular SEQ ID NO.

#### Rejections Under 35 U.S.C §§ 102 and 103

The Examiner has rejected Claims 40, 44, 46-52 and 55-61 as being anticipated by Collisson stating that Collisson is available as a reference as of May 1, 1998. Collisson teaches SEQ ID NO:5, a nucleic acid sequence encoding a feline B7-2 protein, that is 98% identical to the coding region of instant SEQ ID NO:28 and 95% identical to instant SEQ ID NO:26.

Applicants note that SEQ ID NO's 1-29 were disclosed on April 17, 1998, prior to Collissons filing date of May 1, 1998. It is only SEQ ID NO's 31-35 that were disclosed on March 19, 1999 which is after Collissons priority date. Applicants note that the Claims have been amended so that SEQ ID NO's 31-35 are not claimed in the same claim as SEQ ID NO's 1-

29. For example, Claim 40 now lists only SEQ ID NO's 6, 9, 16, 19, 25 and 28 and therefore should be accorded a priority date of April 17, 1998 which is earlier than Collissons priority date. With respect to SEQ ID NO's 30-35, Claim 41 claims nucleic acid sequences at least about 95% identical to SEQ ID NO:33 and amino acid sequences 95% identical to SEQ ID NO:34. Applicants note that Collisson cannot be considered prior art to these sequences for the following reasons.

## align Results

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>_ SIN5 509 nt vs.
>_ SIN33 359 nt

scoring matrix: , gap penalties: -12/-2
69.0% identity; Global alignment score: 1056

      10      20      30      40      50      60
SIN05  ATACAAGGTTACCCAGAACCTAAGGAGATGTATTTTCAGCTAAACACTGAGAATTCAACT
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
SIN33  ATACAAGGTTACCCAGAACCTAAGGAGATGTATTTTCAGCTAAACACTGAGAATTCAACT
      10      20      40      50      60

      70      80      90      100     110     120
SIN05  ACTAAGTATGATACTGTCATGAAGAAATCTCAAAATAATGTGACAGAACTGTACAACGTT
      : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : : :
SIN33  ACTAAGTATGATACTGTCATGAAGAAATCTCAAAATAATGTGACAGAACTGTACAACGTT
      70      80      90      100     110     120

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	130	140	150	160	170	180
SIN05	TCTATCAGCTTGCCTTTTTCAGTCCCTGAAGCACACAATGTGAGCGTCTTTTGTGCCCTG					
	::					
SIN33	TCTATCAGCTTGCCTTTTTCAGTCCCTGAAGCACACAATGTGAGCGTCTTTTGTGCCCTG					
	130	140	150	160	170	180
	190	200	210	220	230	240
SIN05	AAACTGGAGACACTGGAGATGCTGCTCTCCCTACCTTTCAATATAGATGCACAACCTAAG					
	::					
SIN33	AAACTGGAGACACTGGAGATGCTGCTCTCCCTACCTTTCAATATAGA-----					
	190	200	210	220		
	250	260	270	280	290	300
SIN05	GATAAAGACCTGAACAAGGCCACTTCCTCTGGATTGCGGCTGTACTTGTAATGTTTGT					
	-----					
	310	320	330	340	350	360
SIN05	GTTTTTTGTGGGATGGTGTCCCTTTAAACACTAAGGAAAAGGAAGAAGAAGCAGCCTGGC					
	-----					
	370	380	390	400	410	420
SIN05	CCCTCTCATGAATGTGAAACCATCAAAAGGGAGAGAGAAAAGAGAGCAAACAGACCAACGAA					
	::					
SIN33	-----AACCATCAAAAGGGAGAGAGAAAAGAGAGCAAACAGACCAACGAA					
		230	240	250	260	270
	430	440	450	460	470	480
SIN05	AGAGTACCATAACCACGTACCTGAGAGATCTGATGAAGCCCAGTGTGTTAACATTTTGAAG					
	::					
SIN33	AGAGTACCATAACCACGTACCTGAGAGATCTGATGAAGCCCAGTGTATTAAACATTTTGAAG					
	280	290	300	310	320	330
	490	500				
SIN05	ACAGCCTCAGGGGACAAAAATCAGTAGG-A					
	:::::::::::::::: : : : :					
SIN33	ACAGCCTCAGGCGACAAAAGT-ACTACACA					
	340	350				

With respect to SEQ ID NO:30, Applicants note that Claim 41 now claims a nucleic acid sequence comprising the sequence of SEQ ID NO:30. Alignment of SEQ ID NO:30 with the corresponding region of Collissons SEQ ID NO:5 (shown below) demonstrates that these sequences are not 100% identical but, due sequence variation at their 3' ends, are instead 98.4% identical.

# align Results

Please site: Pearson, W.R., Wood, T., Zhang, Z., and Miller, W. (1997)

Comparison of DNA sequences with protein sequences, Genomics 46: 24-36

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>_ SIN5                                509 nt vs.
>_ SIN30                               509 nt
scoring matrix: , gap penalties: -12/-2
98.4% identity;      Global alignment score: 1966

      10      20      30      40      50      60
SIN05 ATACAAGGTTACCCAGAACCTAAGGAGATGTATTTTCAGCTAAACACTGAGAATTCAACT
      :
SIN30 ATACAAGGTTACCCAGAACCTAAGGAGATGTATTTTCAGCTAAACACTGAGAATTCAACT
      10      20      30      40      50      60

      70      80      90     100     110     120
SIN05 ACTAAGTATGATACTGTCATGAAGAAATCTCAAAATAATGTGACAGAAGTGTACAACGTT
      :
SIN30 ACTAAGTATGATACTGTCATGAAGAAATCTCAAAATAATGTGACAGAAGTGTACAACGTT
      70      80      90     100     110     120

      130     140     150     160     170     180
SIN05 TCTATCAGCTTGCCTTTTTCAGTCCCTGAAGCACACAATGTGAGCGTCTTTTGTGCCCTG
      :
SIN30 TCTATCAGCTTGCCTTTTTCAGTCCCTGAAGCACACAATGTGAGCGTCTTTTGTGCCCTG
      130     140     150     160     170     180

      190     200     210     220     230     240
SIN05 AACTGGAGACACTGGAGATGCTGCTCTCCCTACCTTTCAATATAGATGCACAACCTAAG
      :
SIN30 AACTGGAGACACTGGAGATGCTGCTCTCCCTACCTTTCAATATAGATGCACAACCTAAG
      190     200     210     220     230     240

      250     260     270     280     290     300
SIN05 GATAAAGACCCTGAACAAGGCCACTTCCTCTGGATTGCGGCTGTACTTGTAATGTTTGGT
      :
SIN30 GATAAAGACCCTGAACAAGGCCACTTCCTCTGGATTGCGGCTGTACTTGTAATGTTTGGT
      250     260     270     280     290     300

      310     320     330     340     350     360
SIN05 GTTTTTTGTGGGATGGTGTCTTTTAAACACTAAGGAAAAGGAAGAAGAAGCAGCCTGGC
      :
SIN30 GTTTTTTGTGGGATGGTGTCTTTTAAACACTAAGGAAAAGGAAGAAGAAGCAGCCTGGC
      310     320     330     340     350     360

      370     380     390     400     410     420
SIN05 CCCTCTCATGAATGTGAAACCATCAAAAGGGAGAGAAAAGAGAGCAAACAGACCAACGAA
      :
SIN30 CCCTCTCATGAATGTGAAACCATCAAAAGGGAGAGAAAAGAGAGCAAACAGACCAACGAA
      370     380     390     400     410     420

      430     440     450     460     470     480
SIN05 AGAGTACCATAACCACGTACCTGAGAGATCTGATGAAGCCCAGTGTGTTAACATTTTGAAG
      :
SIN30 AGAGTACCATAACCACGTACCTGAGAGATCTGATGAAGCCCAGTGTATTAACATTTTGAAG
      430     440     450     460     470     480

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```

          490          500
SIN05  ACAGCCTCAGGGGACAAAAATCAGTAGG-A
      : : : : : : : : : : : : : : : :
SIN30  ACAGCCTCAGGCGACAAAAGT-ACTACACA
          490          500

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Similar result (97.6% identity) are seen if the corresponding protein sequences (SEQ ID NO:6 and SEQ ID NO:31) are aligned.

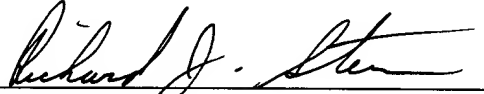
Based on the alignments shown above, Applicants believe that Collisson cannot be considered prior art for the current claims set.

CONCLUSION

In light of the amendments and remarks above, Applicants request the withdrawal of all rejections and solicit an allowance of the newly submitted claims. The Examiner is invited to contact the undersigned should any issues remain.

Respectfully submitted,

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